CO_2 Data Distribution and Support from the Goddard Earth Science Data and Information Services Center (GES-DISC)

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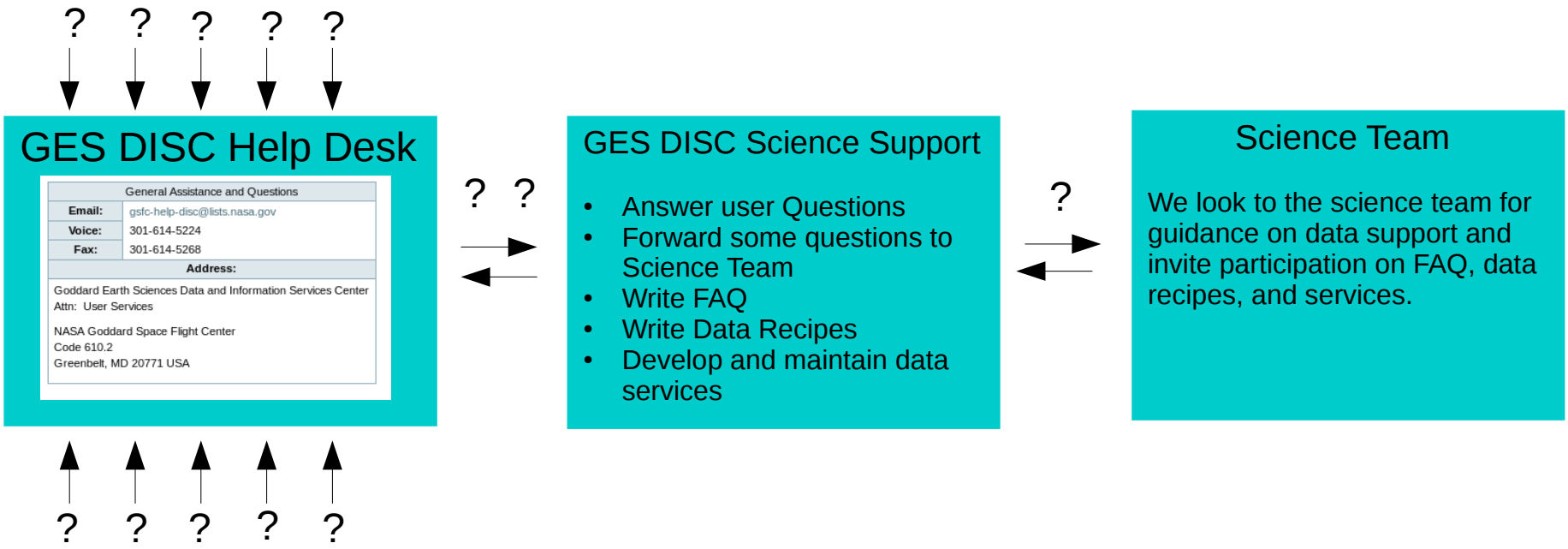
Outline

- Process for Tracking User Queries
- Immediate needs in preparation for the OCO-2 Level 2 data release
  - Level 2 Files
  - Documentation
  - Guidance for Versions
  - ACOS update
- CO_2 data distribution metrics: ACOS, AIRS, and OCO-2
- Existing and possible future data services

The questions posed in this presentation can be addressed in followup emails and telecons

Process for Tracking User Queries



User Queries regarding OCO-2 we have received so far are typical

- Where is the data?
- What are the units?
- What is the difference between AIRS and OCO-2?
- Can I do ____ with the data?

Process for Tracking User Queries

- *Is there a person(s) on the science team through whom we should route questions?*

Immediate needs in preparation for OCO-2 Level 2 release

- Level 2 Files
- Documentation
- Guidance for Versions
- ACOS update

Level 2 Files

- The previous test data flows with ACOS and OCO-2 Level 1 files have worked well. We want to continue the same process for the Level 2 release.
- So far, we have only tested the data flow for the OCO2_L2_IMAPDOAS files.
- We request at least two weeks lead time to exercise our system prior to the public release.
- *When will we get the OCO2_L2_Diagnostic and OCO2_L2_Standard files?*
- *Will the Lite product be an official product?*
- *Who are the intended users of the Lite product?*

Documentation

- As the products evolve we can easily add or modify existing data description documents.
- We find it helpful to send documents to multiple people at the GES-DISC in case anyone is not available. At a minimum documents should be sent to **Bruce.Vollmer@nasa.gov** and **Andrey.Savtchenko@nasa.gov**.
- We will always respond with an email confirming that we put the documents on the web.
- We have not received any documentation regarding the Lite Product.

Documentation

Are these the correct Versions for the Data release?

- OCO-2 Data Product User's Guide, **December 30, 2014**
- Data Quality Statement, **Known Issues as of December 19, 2014**
- Interface Spec for Attitude Product, **November 18, 2014**
- Interface Spec for Ephemeris Product, **November 18, 2014**
- Interface Spec for L1A Instrument Product, **November 18, 2014**
- Interface Spec for L1B Product, **November 18, 2014**
- Level 1B ATBD, **December 30, 2014**
- Level 2 ATBD, **May 2014**
- IMAP-DOAS preprocessor, **April 1, 2014**
- Oxygen-A Band Cloud Screening Algorithm (ABO2) ATBD, **August 21, 2014**

Guidance on Versions

- Currently we are offering Version 5 starting from **December 14, 2014**.
- *Will there be any changes to the mission start date?*
- *Will there be a new Version of the Level 1b with the Level 2 release?*

You are here: Project » OCO-2 » OCO-2_L1B_Science » 2014 » December

Keyword | Projects | Science Areas

OCO-2_L1B_Science info

OCO-2 Level 1B Calibrated, Geolocated OCO-2 Science Spectra

December 2014 >>
250 Data Granules

Su	Mo	Tu	We	Th	Fr	Sa
	1	2	3	4	5	6
7	8	9	10	11	12	13
14 5	15 14	16 15	17 14	18 15	19 14	20 13
21 14	22 15	23 15	24 14	25 15	26 14	27 15
28 14	29 15	30 14	31 15			

Guidance on Versions

- We support at most 2 concurrent versions.
- *Will there be **Version 6 and 6R** that do not overlap or **Versions 5 and 6**?*
- Calibration status may be better managed using metadata.

You are here: GES DISC Home » Orbiting Carbon Observatory (OCO-2) » Data Holdings » OCO-2

OCO-2 MISSION

Data Holdings

- Known data Issues

Level 0 and Level 1

Product	Long Name	Level	Data Access
OCO2_Att	OCO-2 spacecraft attitude data	0	access
OCO2_Eph	OCO-2 spacecraft ephemerides	0	access
OCO2_L1aIn_Sample	Collated, parsed, OCO-2 Science or Calibration Data	1A	access
OCO2_L1aIn_Pixel	Collated, parsed, OCO-2 Calibration Data	1A	access
OCO2_L1B_Calibration	Calibrated, geolocated OCO-2 calibration spectra	1B	access
OCO2_L1B_Science	Calibrated, geolocated OCO-2 science spectra	1B	access

Level 2 (expected March, 2015)

OCO2_L2_IMAPDOAS	OCO-2 Level 2 spatially ordered geolocated retrievals of XCO2 and fluorescence using the IMAP-DOAS algorithm	2	
OCO2_L2_Diagnostic	OCO-2 Level 2 geolocated XCO2 retrieval results and algorithm diagnostic information	2	
OCO2_L2_Standard	OCO-2 Level2 geolocated XCO2 retrievals results, physical model	2	

Guidance on ACOS Versions

- *Will there be a new version of the ACOS Level 2 product (V3.4 or V3.5)?*
- We are still distributing **ACOS v3.3** data.

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ACOS Data Holdings

ACOS Data

GES DISC distributes the following data from the ACOS (Atmospheric CO2 Observations from Space) Task*:

ACOS Level 2 geolocated retrieved CO2-column averaged dry air mole fraction for all soundings for which retrieval was attempted; physical model.

Data Product Name (Collection Version)	Description	Spatial Resolution	Temporal Coverage	Average Item Size (Mb)	Data Access
ACOS_L2S (3.3)	ACOS Level 2 geolocated retrieved CO2-column averaged dry air mole fraction for all soundings for which retrieval was attempted; physical model. **Algorithm Version 3.3.**	10.5 km @ nadir	2009-4-01 - forward	3	Mirador, ftp, OPeNDAP
ACOS_L2S (2.9)	ACOS Level 2 geolocated retrieved CO2-column averaged dry air mole fraction for all soundings for which retrieval was attempted; physical model. **Algorithm Version 2.9.**	10.5 km @ nadir	2009-4-05 2012-9-24	3	Mirador, ftp, OPeNDAP

*retrievals using SWIR radiances from the TANSO-FTS instrument on board GOSAT (IBUKI) satellite.

– DISC
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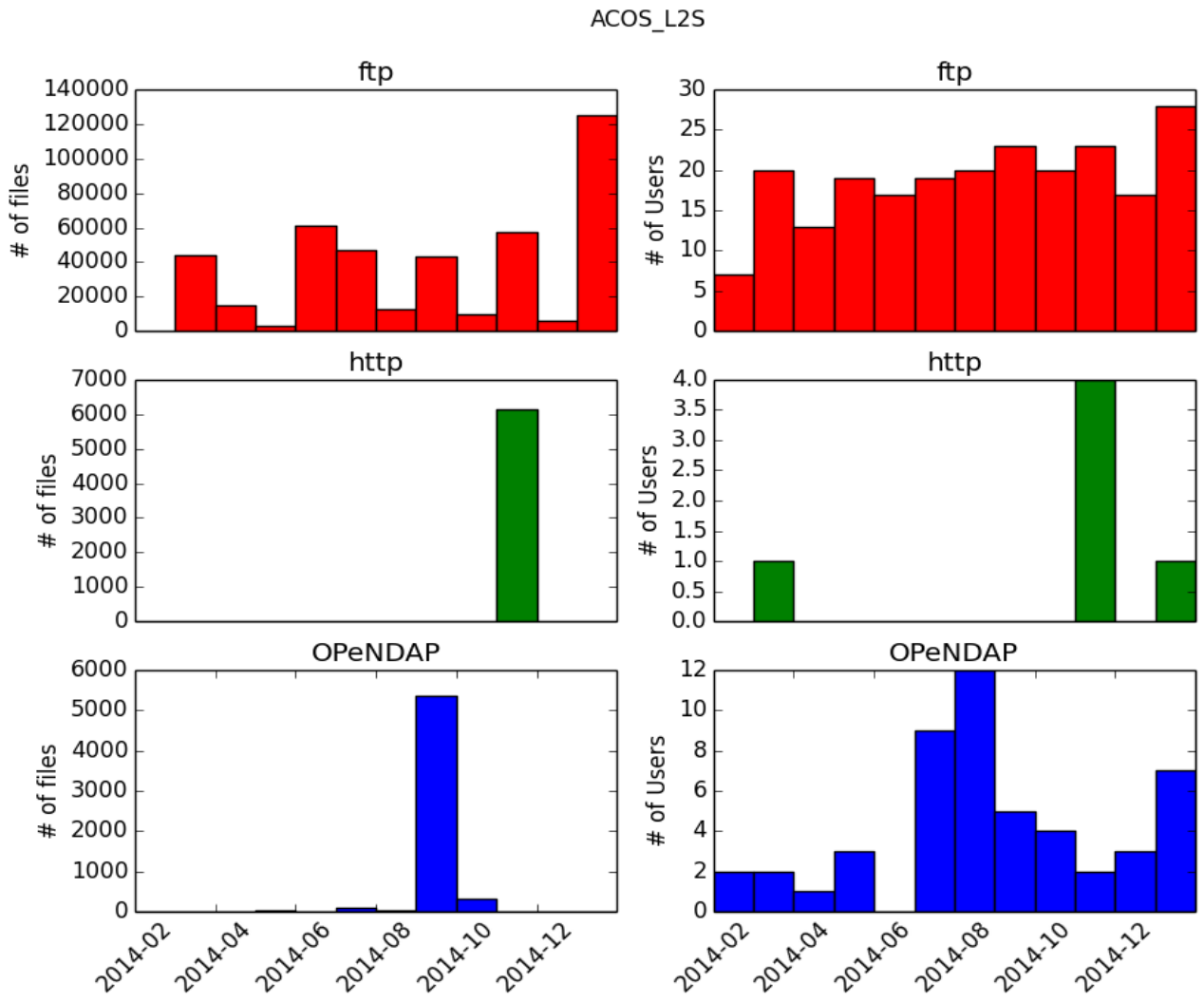
Distribution Metrics

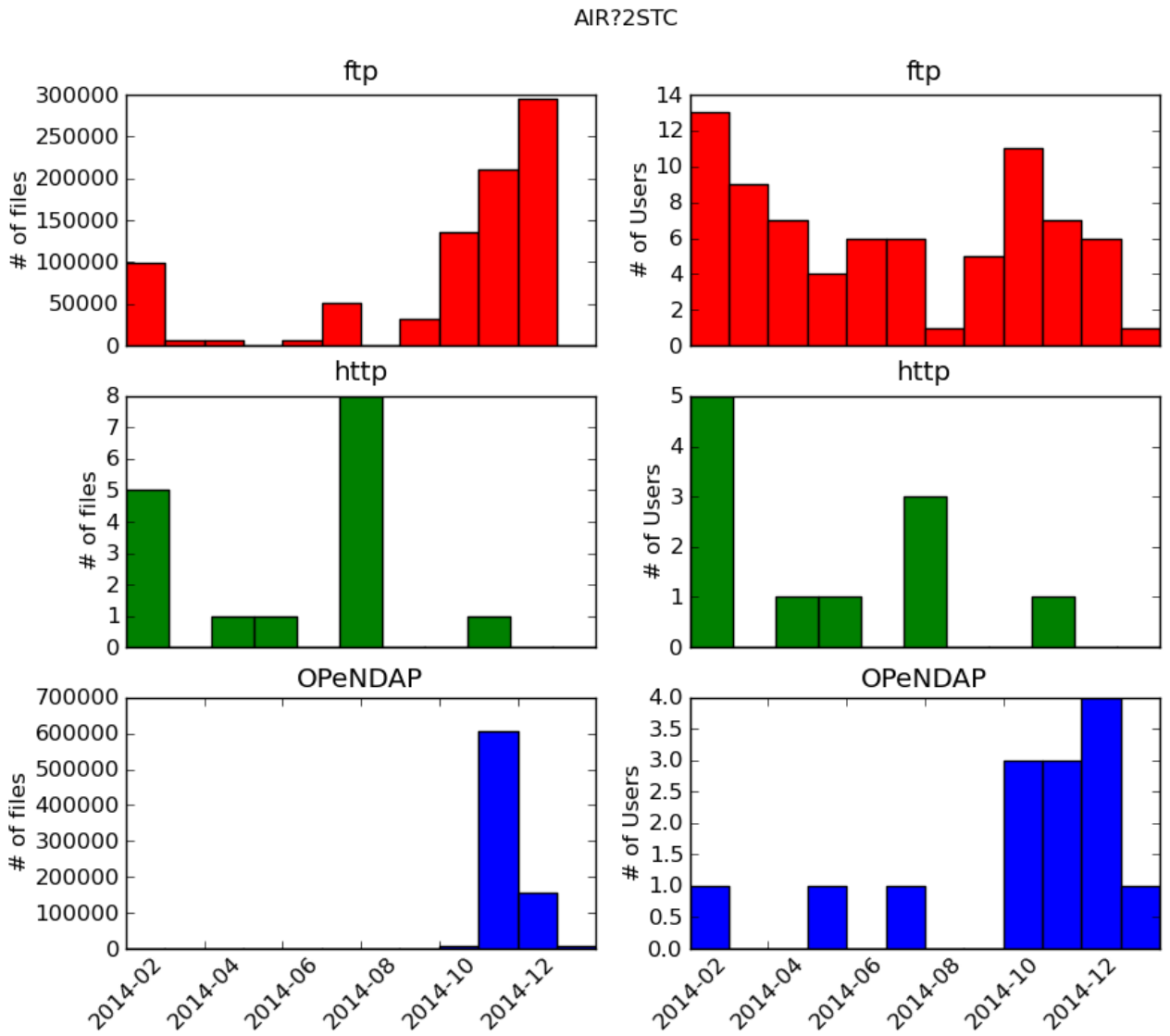
- ACOS V2.9 and V3.3
- AIRS V5 Level 2
- AIRS V5 Level 3
- OCO-2 Level 1

ACOS v2.9 and v3.3 Distribution Metrics

- People are still using **ACOS v3.3**
- Inconsistency with **ACOS v3.4** or **v3.5** may be confusing for users



AIRS Level 2 CO_2 Distribution Metrics



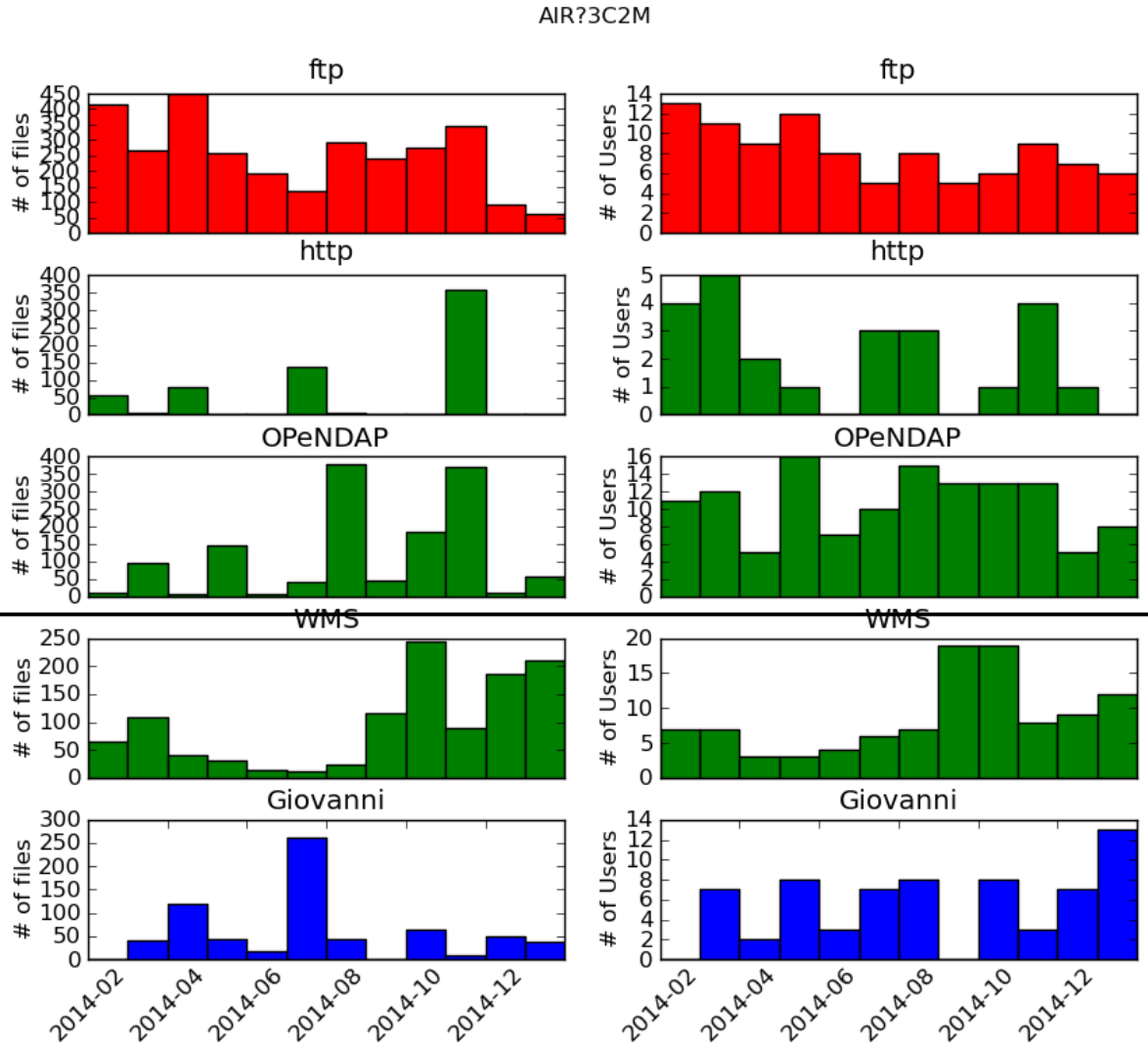
AIRS Level 3 CO_2 Distribution Metrics

- The AIRS Level 3 data have more users than the Level 2 product
- Many users interact with the Level 3 data through Giovanni
- In the absence of an OCO-2 level 3 product perhaps it could be provided in Giovanni as a value added service

Data

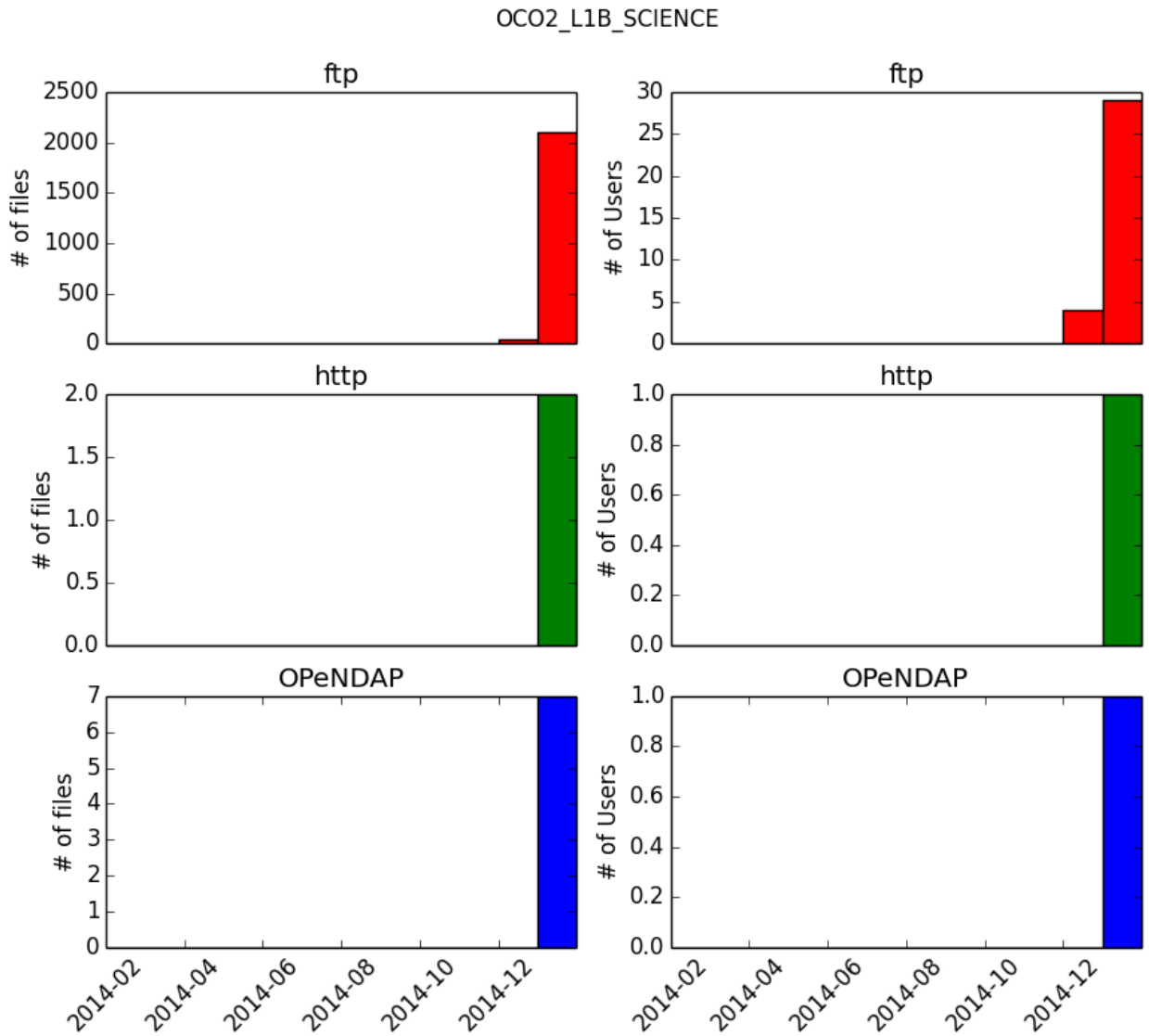
Imagery

Analysis

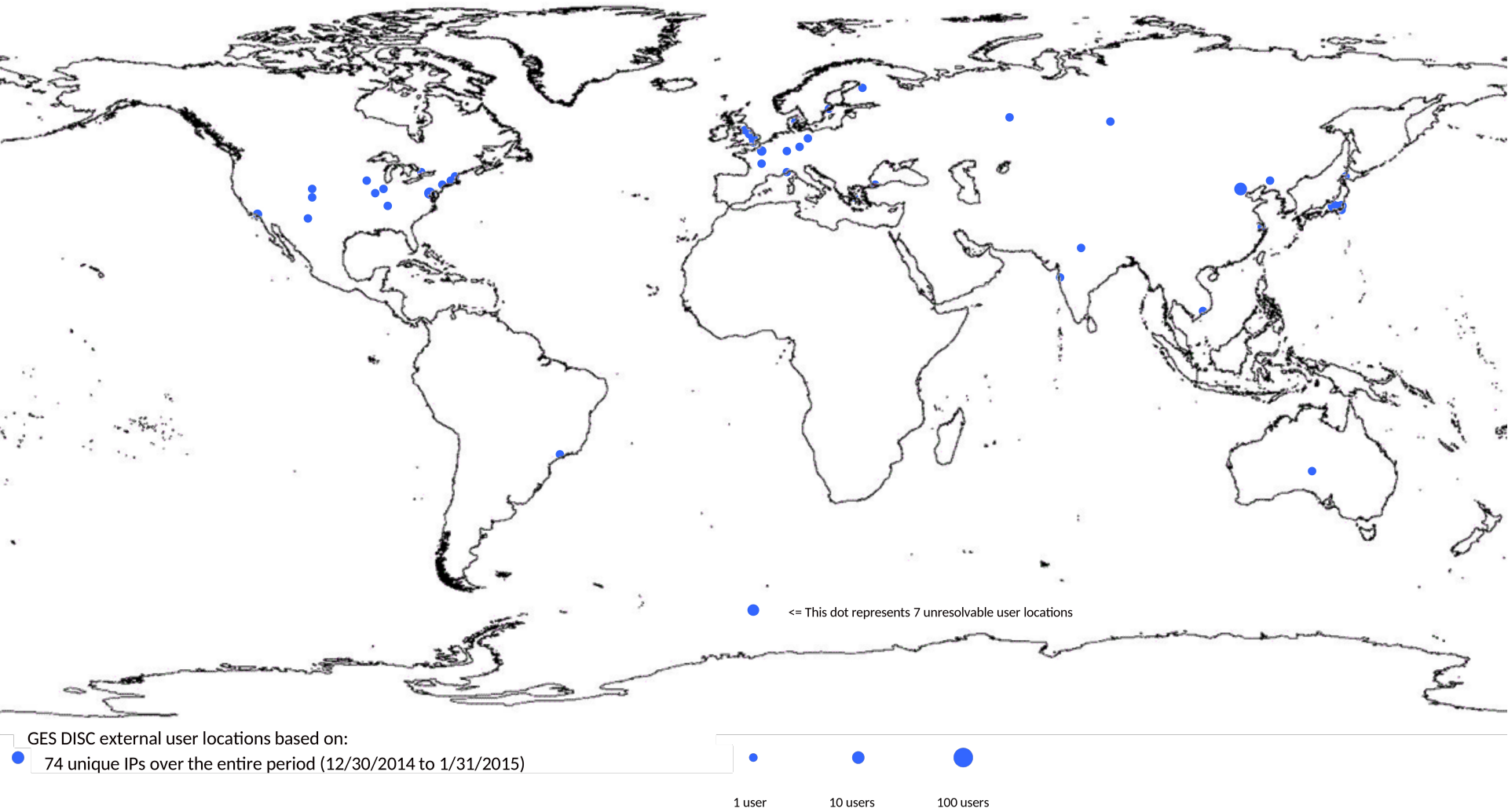


OCO2 Level 1b Distribution Metrics

Already the OCO-2 Level 1b data has more users than the AIRS Level 2.



Geographic distribution of OCO2 users 12/30/2014-1/31/2015

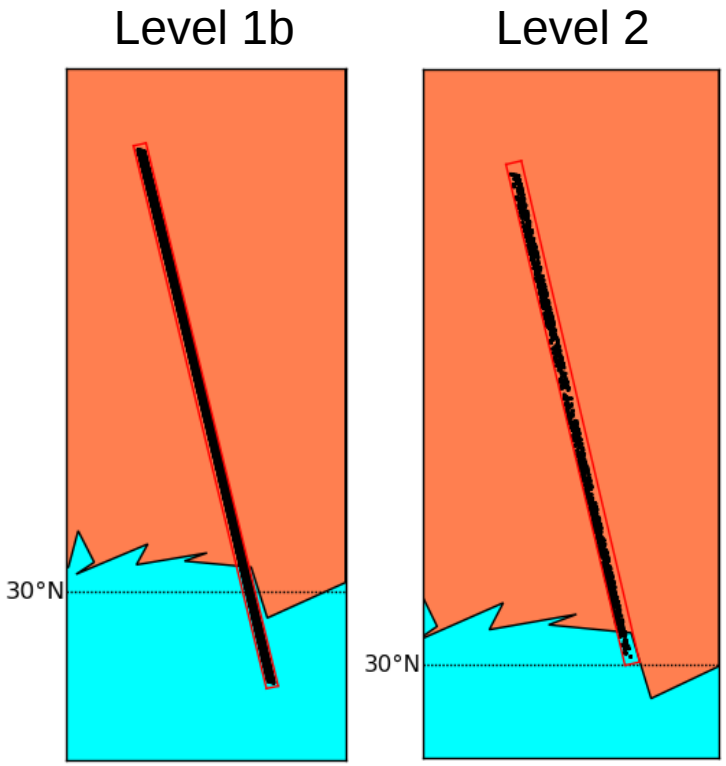


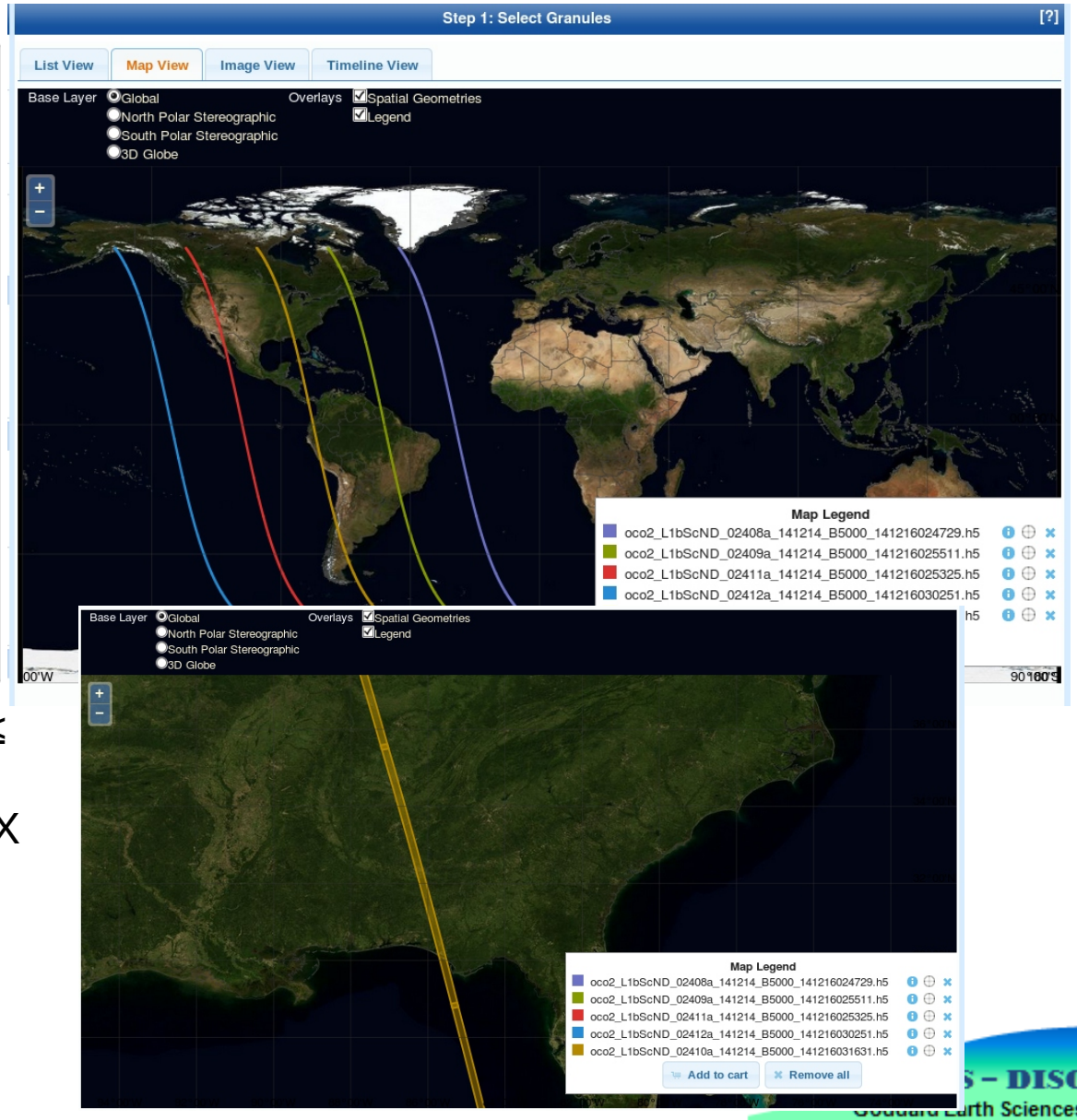
The external user locations plot is derived based on the latitude/longitude of the resolved locations of the unique user IPs over the designated time period for all OCO2 data products and distribution methods. The dot near Antarctica represents the users whose IP did not resolve to a location.

Existing and Possible Future Data Services

- Metadata Publication – Spatial Search
- MODIS Subsets along OCO-2 track
- ACOS WMS Service
- Custom Lite Product
- Colocation with AIRS, MERRA, or other data sets

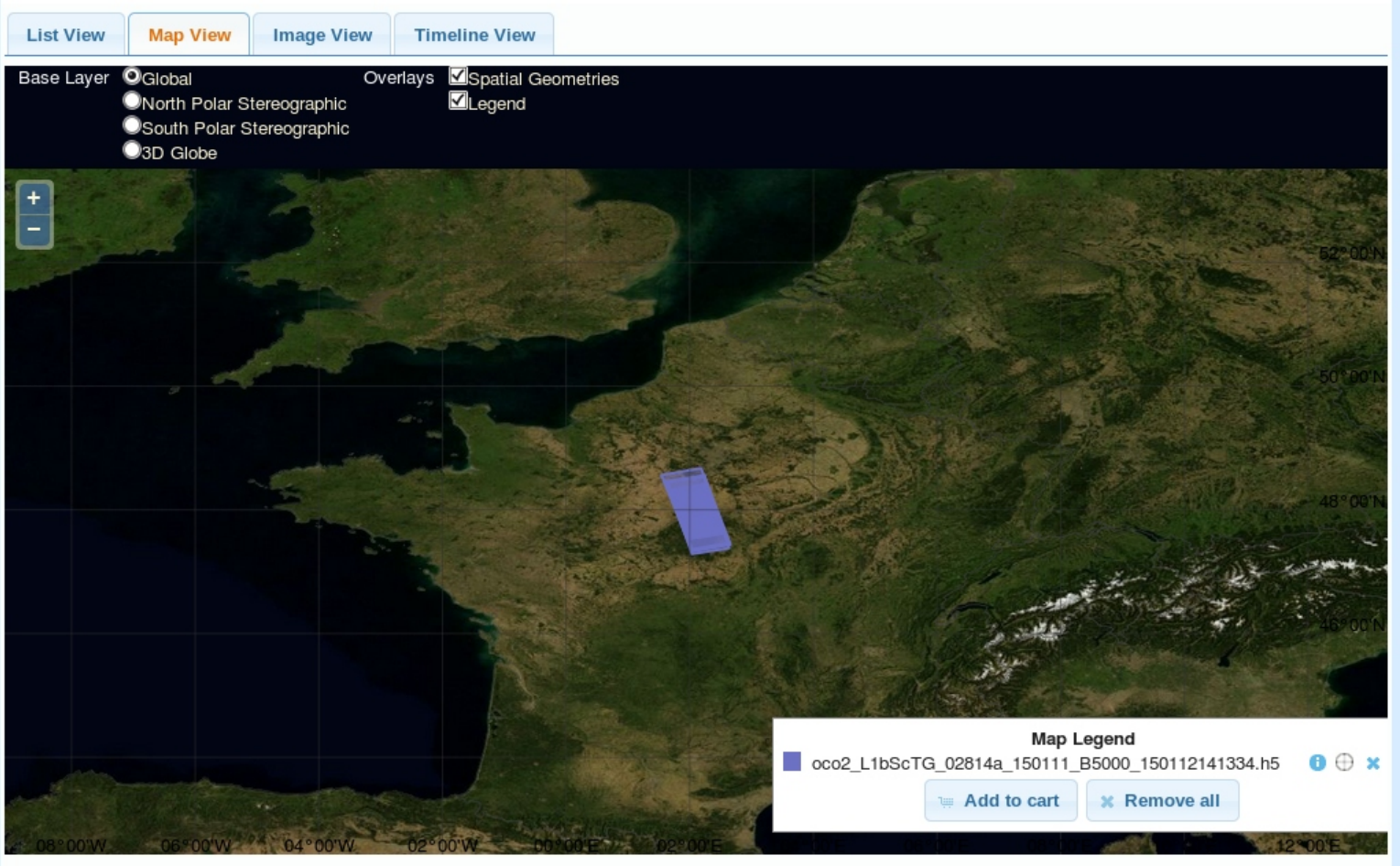
Metadata Publication -Spatial Search Capability





- Each granule is divided into ≤ 25 polygons.
- The corners are within ~ 0.5 X **swath width** beyond actual data.
- For one footprint in polygon box is 2 X 2 km^2.

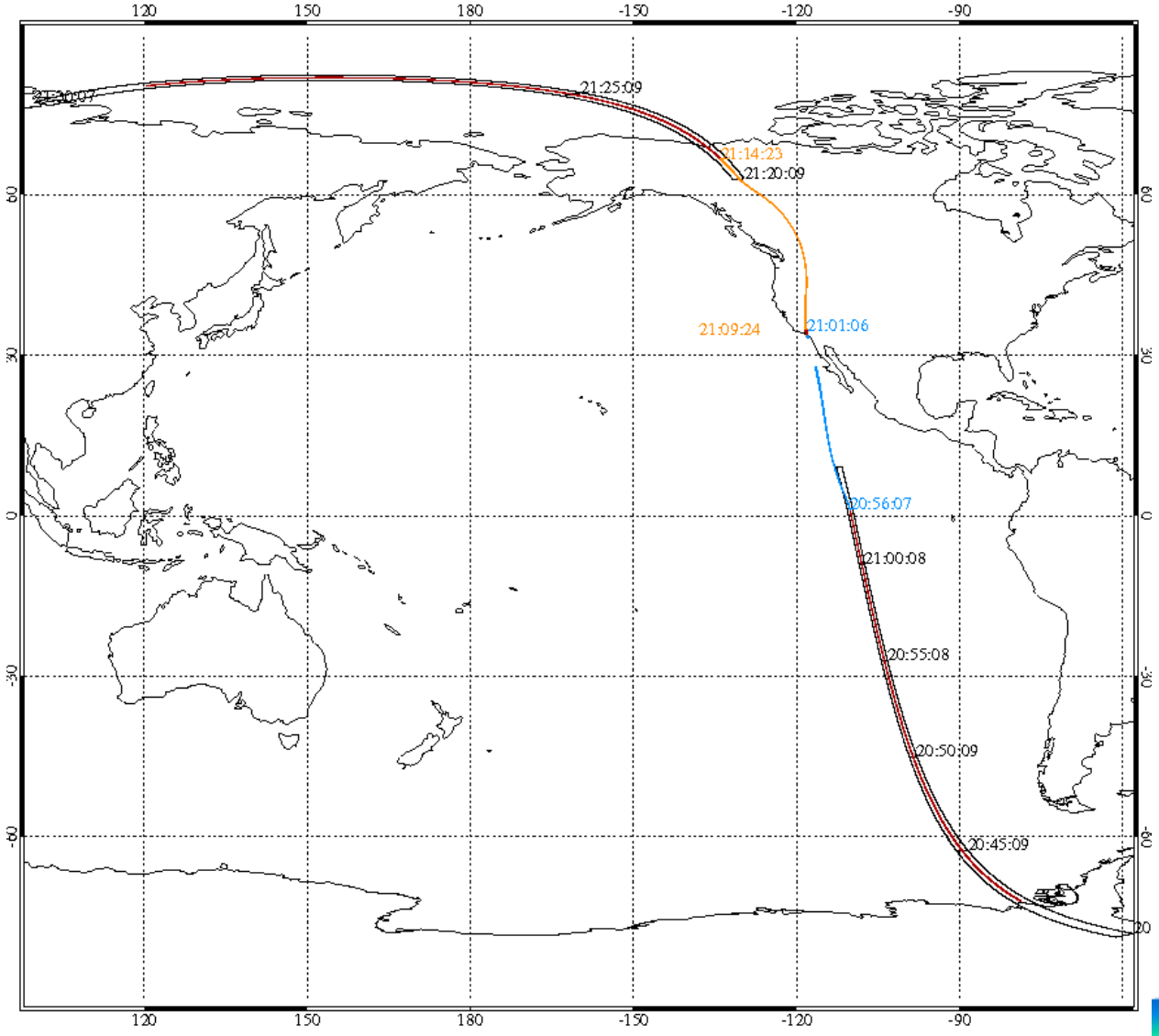
Metadata Publication – Spatial Search Capability



The polygons overlap in target mode.

MODIS Subsets are available by subscription

- Collaboration with the OCO-2 Science team has enabled MODIS subsets along the OCO-2 track
- These subsets are available on a rolling archive by subscription but are not currently advertised (outside of the science team meeting)

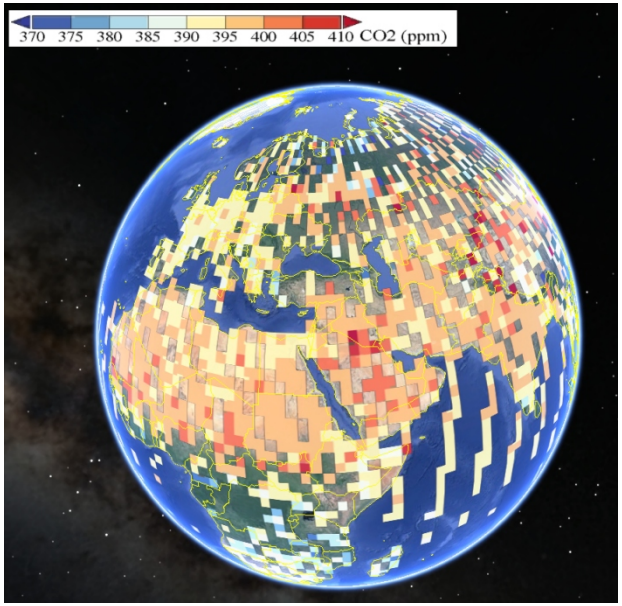


ACOS Web Map Service (WMS)

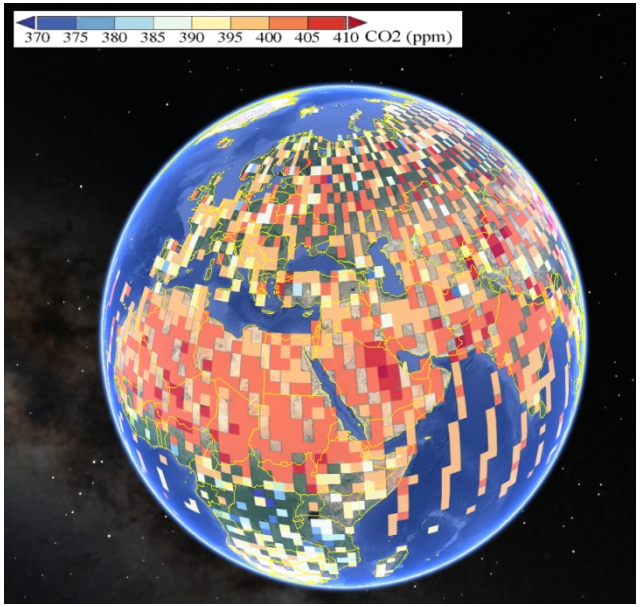
- WMS allows quick visualiztions of gridded data using a browser or GoogleEarth http://disc.sci.gsfc.nasa.gov/acdisc/documentation/acos-wms-images
- We have implemented this for an unofficial gridded ACOS product for various quality screening Levels

xCO2 from ACOS V3.3

April 2011

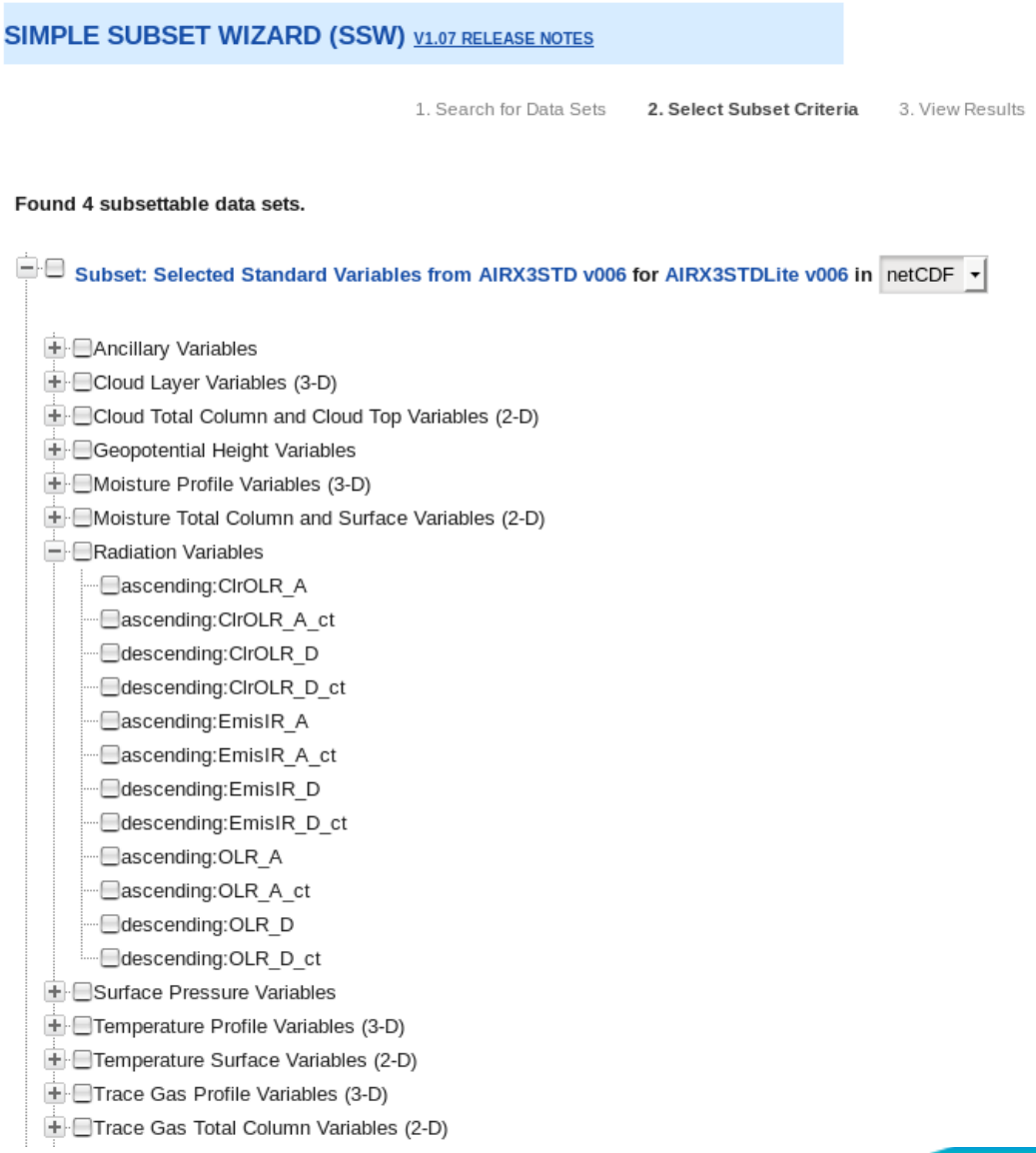


April 2013



Custom Lite Product

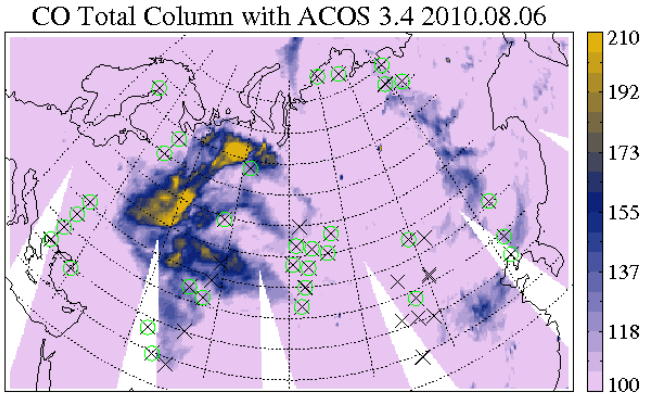
- A virtual lite product can be achieved using OPeNDAP and the Simple Subset Wizard (SSW).
- Aggregation can be provided by a data recipe or on-the-fly.



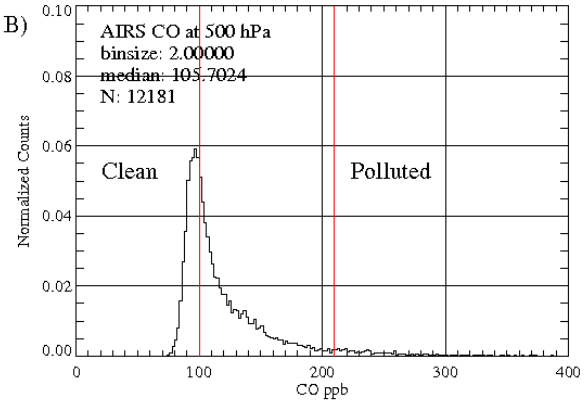
Collocations are possible with MERRA, AIRS, and other data sets

A) Map of AIRS CO with ACOS v3.4 footprins for 2010.08.06. The green circles passed the Quality tests.
B) AIRS CO is used to define clean and polluted scenes.
C) Histogram of ACOS v3.4 clean and polluted data from 2010.07.31 to 2010.08.15
D) Histogram of AIRS Clean and polluted data 2010.07.31 to 2010.08.15

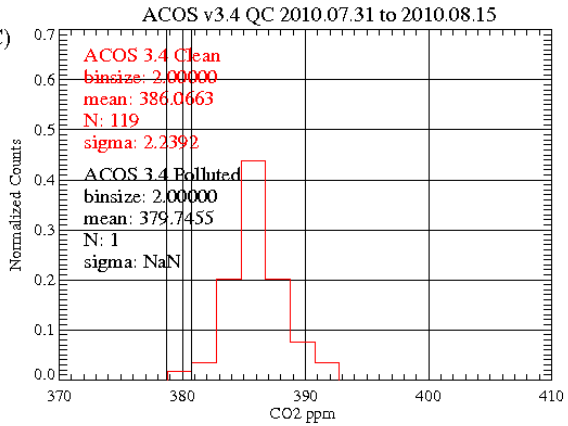
A)



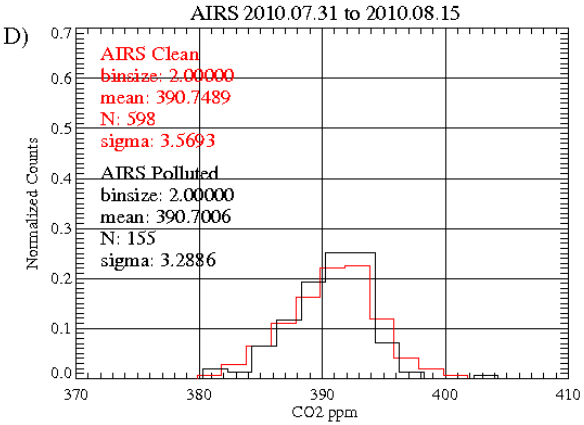
B)



C)



D)



Summary

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